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Liu

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(54) **SUPPORT ASSEMBLY FOR HUB FOR AN
INTERNAL CLUTCH WITH AN EXTERNAL
POWER INPUT MECHANISM**

(56) **References Cited**

U.S. PATENT DOCUMENTS

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 63 days.

5,785,625 A *	7/1998	Matsuo et al.	475/297
5,855,530 A *	1/1999	Huang et al.	475/289
5,863,270 A *	1/1999	Chen et al.	475/289
5,964,678 A *	10/1999	Hanada et al.	475/297
6,383,111 B1 *	5/2002	Liu	475/276
7,708,297 B2 *	5/2010	Thorpe	280/281.1
8,241,160 B2 *	8/2012	Jung et al.	475/297
2001/0019982 A1 *	9/2001	Yoo	475/312
2012/0071290 A1 *	3/2012	Byun	475/288

* cited by examiner

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(57) **ABSTRACT**

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(58) **Field of Classification Search**

CPC **B62M 11/16**; **F16D 21/00**; **F16H 51/00**

See application file for complete search history.

A support assembly of a hub of an internal clutch with an external power input mechanism comprises a hub rotatably supported by a first lateral cover a second lateral cover; the first lateral cover being fixedly retained to a fixing shaft; the first lateral cover being formed with at least one through hole for installing a driving device; therefore, an external power can be transferred into the first lateral cover by passing through the driving device to drive an internal clutch therein. The driving device includes active gears and passive gears; the active gear for transferring external power is installed out of the first lateral cover. The passive gear is installed within the first lateral cover and the hub. The passive gear is engaged to the internal clutch. The active gear out of the first lateral cover is engaged to the passive gear and passes through the through hole.

7 Claims, 7 Drawing Sheets

